

Att'y Ref. No. 003-088

U.S. App. No.: 10/676,036**REMARKS**

Favorable reconsideration, reexamination, and allowance of the present patent application are respectfully requested in view of the foregoing amendments and the following remarks.

**Allowable Subject Matter**

Applicant gratefully acknowledges the indication, at pages 1 and 8 of the Office Action, that the subject matters of Claims 23 and 25 are free of the prior art.

**Withdrawal of Claims**

Applicant acknowledges the withdrawal of Claims 1-10 from consideration at this time, pursuant to the Restriction / Election requirement in the Office Action dated 27 January 2005. Because the Restriction was made final in the Office Action, and Applicant was required to cancel the non-elected claims or take other action, e.g., seek review of the Restriction Requirement, Applicant has canceled the claims. Applicant reserves the right to file one or more Divisional applications to further pursue the subject matters of these claims.

**Objection to the Abstract**

At page 4 of the Office Action, the Abstract was objected to because it included a reference to a drawing figure. By way of the foregoing amendment, Applicant has revised the Abstract to better comport with current U.S. practice, and respectfully requests reconsideration and withdrawal of this objection.

**Objection to the Specification**

At page 3 of the Office Action, the Specification was objected to because it allegedly failed to satisfy the aspirational guidelines of Rule 77, and because it didn't reference the British priority application. Applicant respectfully requests reconsideration of this objection.

By way of the foregoing amendments, Applicant has added section headings throughout the specification, and added a sentence on page 1 making reference to the priority document;

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Applicant respectfully submits that the Specification is not objectionable, and therefore respectfully requests withdrawal of the objection thereto.

**Rejection under 35 U.S.C. § 103(a)**

In the Office Action, beginning at page 4, Claims 11-16 and 20 were rejected under 35 U.S.C. § 103(a), as reciting subject matters that allegedly are obvious, and therefore allegedly unpatentable, over the disclosure of Japanese published application no. 10-094205, invented by Hiroshi *et al.* ("Hiroshi"), in view of the disclosure of U.S. Patent No. 4,110,900, issued to Lonseth *et al.* ("Lonseth"). Additionally, Claims 17-19, 21, 22, and 24 were rejected under section 103 as reciting subject matters that are allegedly obvious over Hiroshi and Lonseth, and further in view of "Applicants Admitted Prior Art" ("AAPA"). Applicant respectfully requests reconsideration of these rejections.

This application describes, *inter alia*, processes for placing an armature bar into a stator slot. As described throughout the specification, and with reference to Figs. 1 and 2, armature bars 10 are located in slots 20 of a stator, and are spaced apart by a conventional filler 36. Lateral ripple springs 30 are provided on one side of the bar or bars, between the bar or bars and the sidewall of the slot 20, which springs bias the bars toward the other wall of the slot. Because the prior art springs often would not urge the bars completely against the slot wall, and because such springs themselves include air gaps, air gaps are left between the bars and the slot walls which interfere with thermal conduction away from the bars.

In response to this difficulty, the Applicant herein provides a process by which a precursor 37, 38 of a conformable material is provided to fill a void space in the slot between the bar and the slot wall, in addition to providing a ripple spring in the slot. In this manner, as the precursor cures *in situ* with the spring in place, the finally cured material can fill the disadvantageous void spaces without being significantly prestressed. Thus, the armature bar can be both biased by the ripple spring and benefit from the heat transfer characteristics of the conformable material.

Claim 11 relates to a method of mounting an armature bar having a combination of steps

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including, *inter alia*, inserting a spring between a bar and a core, and providing a flowable precursor of a conformable material in a void space between one side surface of the bar and the corresponding side surface of the slot so that the precursor fills the void space.

The prior art, including *Hiroshi* and *Lonseth*, fails to disclose, describe, or fairly suggest processes such as those recited in the pending claims.

*Lonseth* describes injecting a precursor material directly into a stator slot between the slot wall and the coil, whereby a tool 32, including its nozzle assembly 35, has to be inserted into the slot as well, as shown in Fig. 3. *Lonseth* is completely silent about the presence of a ripple spring in the slot. Indeed, *Lonseth* appears to use the material 45 instead of springs, because the material 45 completely fills the spaces between the bars and the slot walls. According to *Lonseth*:

Since the material 45 prior to covering is a thixotropic material and is discharged from nozzle assembly 35 at considerable pressure, it tends to flow along surfaces 43, 44 to fill the entire space between these surfaces and then overflow into ducts 14 if not stopped from doing so.

Column 5, lines 30-35. For this reason, *Lonseth* provides two embodiments of tools for blocking the material from entering the ducts, as illustrated in Figs. 1 and 4. Furthermore, the object of *Lonseth*'s invention is to provide paths from the outer surface of conductor insulation to the magnetic cores, for inhibiting corona discharges. Thus, *Lonseth*'s invention deals with the electric properties of the dynamoelectric machines only.

*Hiroshi* describes a coil 1 located in a slot 2 having a gap 3 therebetween. A sheet-like elastic member, 8, 9, 12 (10+11), 13, or 14 is provided in the gap 3. At paragraphs [0006] and [0008], *Hiroshi* appears to indicate that either or both of the coils insulation or the spacer 4 are formed of an "FRP" material, which, at paragraph [0012], *Hiroshi* indicates is rigid. *Hiroshi* is entirely silent regarding introducing a precursor of a conformable material into a slot, and also plainly fails to disclose the concurrent use of both the elastic member and a ripple spring. Element 9 is not a ripple spring, as *Hiroshi* plainly equates it to the other relatively rigid

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elements 8, 12 (10+11), 13, and 14. Additionally, *Hiroshi*'s aim is to restrain the temperature of the insulation coil, *i.e.*, improving thermal conductivity with the fixing force of the insulation coil maintained, *i.e.*, with the elastic member acting to both press the coil against the slot wall and occupy the gap between the coil and the slot wall. Thus, *Hiroshi*'s invention is directed to the thermal properties of the machine only.

The Office Action thus fails to make out a *prima facie* case of obviousness for at least two reasons. Assuming, *arguendo*, that the skilled artisan, upon a full and fair reading of both *Lonseth* and *Hiroshi*, would somehow find motivation to combine the document's disclosures, the resulting hypothetical process would still not include each and every step recited in the pending claims. Inserting the elastic member of *Hiroshi* results in no space remaining between the slot wall and the coil for inserting the nozzle assembly 35 of *Lonseth*. Thus, the skilled artisan would find that the hypothetical combination would not work, because there would be no way of injecting the material 45 of *Lonseth*. Furthermore, were the skilled artisan to nevertheless inject material 45, the claimed processes would still not be performed, as neither *Lonseth* nor *Hiroshi* describe inserting a ripple spring into the slot. Fundamentally, reliance on *Lonseth* and *Hiroshi* fails at least in part because they both describe apparatus and processes used instead of, not in addition to, ripple springs.

AAPA, to the extent that it may be used as an admission against Applicant, also fails to disclose, describe, or suggest the combination of steps as recited in the pending claims, for similar reasons.

For at least the foregoing reasons, Applicant respectfully submits that the subject matters of Claims 11-22 and 24, each taken as a whole, would not have been obvious to one of ordinary skill in the art at the time of Applicant's invention, are therefore not unpatentable under 35 U.S.C. § 103(a), and therefore respectfully requests withdrawal of the rejection thereof under 35 U.S.C. § 103(a).

## Conclusion

Applicant respectfully submits that the present patent application is in condition for

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allowance. An early indication of the allowability of this patent application is therefore respectfully solicited.

If the patent examiner believes that a telephone conference with the undersigned would expedite passage of this patent application to issue, they are invited to call on the number below.

It is not believed that extensions of time are required, beyond those that may otherwise be provided for in accompanying documents. If, however, additional extensions of time are necessary to prevent abandonment of this application, then such extensions of time are hereby petitioned under 37 C.F.R. § 1.136(a), and the Commissioner is hereby authorized to charge fees necessitated by this paper, and to credit all refunds and overpayments, to our Deposit Account 50-2821.

Respectfully submitted,

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